APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
LEE, ANDREW CHUNG CHEUNG

ART UNIT	PAPER NUMBER
2664	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/924,786	OH, JINTAE
	Examiner	Art Unit	
	Andrew C. Lee	2664	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>08 August 2001</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is

   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>1-20</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) <u>1,2,4-7,11,13-17 and 20</u> is/are rejected.

7) ☐ Claim(s) <u>3,8,9,10,12,18,19</u> is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☒ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All   b) ☐ Some * c) ☐ None of:

   1. ☐ Certified copies of the priority documents have been received.

   2. ☐ Certified copies of the priority documents have been received in Application No. _____.

   3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage

      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date <u>08/08/2001</u>.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Drawings

1.   The informal drawings are not of sufficient quality to permit examination.

Accordingly, replacement drawing sheets in compliance with 37 CFR 1.121(d) are

required in reply to this Office action. The replacement sheet(s) should be labeled

"Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct

any portion of the drawing figures. If the changes are not accepted by the examiner, the

applicant will be notified and informed of any required corrective action in the next Office

action.

Applicant is given a TWO MONTH time period to submit new drawings in

compliance with 37 CFR 1.81. Extensions of time may be obtained under the provisions

of 37 CFR 1.136(a). Failure to timely submit replacement drawing sheets will result in

ABANDONMENT of the application.

2.   New corrected drawings in compliance with 37 CFR 1.121(d) are required in this

application because the claimed subject matters of selecting a replacement correcting

window according to the prefix, the replacement correcting window having a

replacement correcting window size; identifying a set of target replacements in the

replacement correcting window; identifying a replacement entry for the removed routing

tag and the removed hierarchy pointer value, wherein the replacement entry has a

replacement hierarchical pointer value less than said correcting window size and further

comprises a replacement routing tag; and entering the replacement routing tag into the

routing tag field for each address of the set of target entries and entering said

replacement hierarchy pointer value into the hierarchy pointer field for each address of

said set of target entries are not disclosed clearly in the drawings. Applicant is advised

to employ the services of a competent patent draftsperson outside the Office, as the

U.S. Patent and Trademark Office no longer prepares new drawings. The corrected

drawings are required in reply to the Office action to avoid abandonment of the

application. The requirement for corrected drawings will not be held in abeyance.

3.   The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5)

because they do not include the following reference sign(s) mentioned in the

description: page 9, lines 9 – 10, referring to Figure 4, "The pointer administrator is a

means for managing expansion pointers."; page 14, line 18, the element "the longest

prefix matching forwarding table"; page 16, lines 22, the element "new prefix '000100*';

page 17, lines 20 – 21, the element "Each of these four entries has a hierarchial pointer

value of two, which is equal to the correcting window size of two". Corrected drawing

sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to

avoid abandonment of the application. Any amended replacement drawing sheet should

include all of the figures appearing on the immediate prior version of the sheet, even if

only one figure is being amended. Each drawing sheet submitted after the filing date of

an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next

Office action. The objection to the drawings will not be held in abeyance.

Specification

4.   The disclosure is objected to because of the following informalities:

- The titles for the figures are misleading. They are described as tables format

  not in a tree structure as claimed.

- Page 1, line 20, what does the Applicant mean "the information surrounding

  the packets"? Does the Applicant mean TCP/IP frame format? Or IP

  address? The sentence needs to be more specific.

- Page 8, lines 17, 19, 22, elements "36, 44" have been referred to the

  hierarchy pointer field and hierarchy compare field.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

Claim 13, line 18 on page 25, it is not clear what is meant by "at least one entry".

Since a plurality of entries recited in line 11, does it meant at least one entry from Said

plurality of entries?

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

7.   Claims 1, 2, 4, 5, 6, 7, 11, 13, 14, 15, 16, 17, 20 are rejected under 35 U.S.C.

103(a) as being unpatentable over Eatherton et al. (U.S. 6560610 B1) in view of

Przygienda et al. (U.S. 6563823 B1).

Regarding claims 1, 7, 11, Eatherton et al. discloses the limitation of a method for

managing a plurality of entries in a forwarding table (Fig. 12A, column 12, lines 35 – 42),

comprising the steps of: (a) segmenting the forwarding table into an address field, a

routing tag field, and a hierarchy pointer field (Fig. 3, column 5, lines 48 – 63); said

address field having a fixed bit-length (Fig. 1, column 1, lines 65 – 67); (b) receiving a

new entry, said new entry comprising a valid prefix and a routing tag, said valid prefix

having a valid prefix bit-length (Fig. 7, column 8, lines 31 – 43). Eatherton et al. does not

disclose expressly (c) selecting a correcting window according to said valid prefix,

wherein said correcting window has a correcting window size equal to said valid prefix

bit-length and wherein said correcting window comprises a set of entries in the

forwarding table that include said valid prefix, each of said set of entries further

comprising an address and a hierarchy pointer value; (d) identifying a set of target

entries from said set of entries in said correcting window, wherein each of said set of

target entries has a hierarchy pointer value less than said correcting window size; and

(e) adding said routing tag to said routing tag field for each address of said set of target

entries and adding said correcting window size to said hierarchy pointer field for each

address of said set of target entries. Przygienda et al. discloses the limitation of

(c) selecting a correcting window according to said valid prefix, wherein said correcting

window has a correcting window size equal to said valid prefix bit-length and wherein

said correcting window comprises a set of entries in the forwarding table that include

said valid prefix, each of said set of entries further comprising an address and a

hierarchy pointer value (Fig. 5 a, column 8, lines 51 – 57); (d) identifying a set of target

entries from said set of entries in said correcting window, wherein each of said set of

target entries has a hierarchy pointer value less than said correcting window size

(column 8, lines 58 – 60); and (e) adding said routing tag to said routing tag field for

each address of said set of target entries and adding said correcting window size to said

hierarchy pointer field for each address of said set of target entries (column 8, lines 59 –

67; column 9, lines 1 – 23). It would have been obvious to one of ordinary skill in the art

at the time the invention was made to modify Eatherton et al. to include (c) selecting a

correcting window according to said valid prefix, wherein said correcting window has a

correcting window size equal to said valid prefix bit-length and wherein said correcting

window comprises a set of entries in the forwarding table that include said valid prefix,

each of said set of entries further comprising an address and a hierarchy pointer value;

(d) identifying a set of target entries from said set of entries in said correcting window,

wherein each of said set of target entries has a hierarchy pointer value less than said

correcting window size; and (e) adding said routing tag to said routing tag field for each

address of said set of target entries and adding said correcting window size to said

hierarchy pointer field for each address of said set of target entries such as that taught

by Przygienda et al. in order to provide a method and apparatus for performing longest

match address lookups for routing a packet or cell of information in a network (as

suggested by Przygienda et al., see column 1, lines 7 – 10).

Regarding claim 2, Eatherton et al. discloses the limitation of a method for

managing a plurality of entries according to claimed further comprising the step of

replacing a prefix in the forwarding table (Fig. 7, column 8, lines 31 – 43).

Regarding claim 4, Eatherton et al. discloses the limitation of a method for

managing a plurality of entries according to claimed wherein the forwarding table further

comprises a mother branch entry having a particular address, and wherein the method

further comprises the step of generating and expanding a daughter branch in the

forwarding table for said mother branch entry (Abstract, lines 11 – 20; Fig. 3, column 5,

lines 55 – 60).

Regarding claim 5, Eatherton et al. discloses the limitation of a method for

managing a plurality of entries according to claimed wherein said step of generating and

expanding a daughter branch further comprises the steps of further segmenting the

forwarding table with a pointer field (Fig. 3, column 5, lines 35 – 42); setting an

expansion pointer in said pointer field for said particular address, thereby connecting

said daughter branch with said mother branch entry (column 2, lines 59 – 66; Fig. 4,

column 6, lines 24 – 35); and segmenting said daughter branch with a daughter branch address field, a daughter branch routing tag field, and a daughter branch hierarchy pointer field; said daughter branch address field having a daughter branch fixed bit-length (Column 5, lines 44 – 53).

Regarding claim 6, Eatherton et al. discloses the limitation of a method for managing a plurality of entries according to claimed further comprising the steps of: receiving a new prefix with routing tag information, said new prefix having a bit-length greater than said fixed bit-length of said address field (Fig. 4, elements 352, 354); filtering out said particular address from said new prefix to produce a daughter branch valid prefix, said daughter branch valid prefix having a daughter branch bit-length (column 6, lines 57 – 67); and populating said daughter branch with said routing tag information in said daughter branch routing tag field and with said daughter branch bit-length in said daughter branch hierarchy pointer field (Column 5, lines 44 – 53; column 17, lines 36 – 65).

Regarding claim 13, Eatherton et al. discloses the limitation of a forwarding table for a router (column 1, lines 18 – 26), comprising: a mother branch containing a plurality of entries, said mother branch further comprising an address field, a routing tag field, a hierarchy pointer field, and a pointer field, wherein said address field, said routing tag field, said hierarchy pointer field, and said pointer field respectively contain a plurality of fixed-length addresses, at least one routing tag, at least one hierarchy pointer, and at least one expansion pointer (column 2, lines 59 – 66; Fig. 1, column 5, lines 35 – 53); a higher order compare window spanning a set of said plurality of entries (column 5, lines

40 – 44); and an expanded daughter branch connected to said mother branch through said at least one expansion pointer in said pointer field, said daughter branch having at least one entry (column 6, lines 27 – 30).

Regarding claim 14, Eatherton et al. discloses the limitation of a forwarding table according to claimed wherein said address field of said mother branch has a fixed bit length (Fig. 4, element Tree Bitmap).

Regarding claim 15, Eatherton et al. discloses the limitation of a forwarding table according to claimed wherein said daughter branch has a daughter address field with a daughter fixed-bit length (Fig. 4, element 352).

Regarding claim 16, Eatherton et al. discloses the limitation of a forwarding table according to claimed wherein said daughter fixed-bit length equals said fixed-bit length (column 6, lines 59 – 67, table 1).

Regarding claim 17, Eatherton et al. discloses the limitation of a forwarding table according to claimed wherein said daughter fixed-bit length does not equal said fixed-bit length (column 6, lines 59 – 67, table 1).

Regarding claim 20. Eatherton et al. discloses the limitation of a forwarding table according to claimed further comprising a means for managing said expansion pointer (column 2, lines 59 – 63).

Allowable Subject Matter

8.   Claims 3, 8, 9,10, 12, 18, 19 are objected to as being dependent upon a rejected

base claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims.

Conclusion

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Andrew C. Lee whose telephone number is (571) 272-

3131. The examiner can normally be reached on Monday through Friday from 8:30am -

5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Wellington Chin can be reached on (571) 272-3134. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

ACL   Aug 18, 2005

Ajit Patel
Primary Examiner